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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,926	09/23/2003	Frode Holm	50659/JEC/P396	3354

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EXAMINER

TO, BAOQUOC N

ART UNIT PAPER NUMBER

2162

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,926

Applicant(s)

HOLM ET AL.

Examiner

Baoquoc N To

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12,13,15,17-27,39,40,42 and 44-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-13, 15, 39-40, 42, 53-54 and 56-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/01/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-55 are in the application. Claims 1-11, 14, 16, 28-38, 41 and 43 are canceled, claims 12, 15, 39 and 53 are amended and claims 56-73 are newly added in the preliminary amendment filed on 09/30/2004.

2. Claims 12-13, 15, 17-27, 39-40, 42 and 44-72 are pending in this application.

Election/Restrictions

3. Restriction to one of the following invention is required under 35 U.S.C. 121

I. Claims 12-13, 15, 39-40, 42, 53-54 and 56-73 are storing in the database structure with the value calculated from the audio frequency, which is classified in Class 707, subclass 100+.

II. Claims 17-27 and 44-52 are drawn generating index for audio which is class 707, subclass 3.

2. Inventions I and II are related as subcombinations disclosed as usable together a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I is storing the generated audio value in the database structure. The created index invention II is utilized to store and retrieved index audio. See M.P.E.P 806.05(d)

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3. Because of the inventions are distinct for the given reasons and have acquired in a separate status in the art as show by their different classification, restriction for examination purposes as indicated is proper.

5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even through the requirement be traversed (37 CFR 1.143).

6. Application is reminded that upon cancellation of claims in compliance with 37 C.F.R. 1.48(b) if one or more of the currently named inventor is no longer an inventor of at least one claim remaining in the application. Any amendment of inventor ship must by accompanied by a diligently-file petition under 37 C.F.R 1.48(b) and by fee required 37 C.F.R. 1.17(h)

7. Response to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 308-9051 may be used for formal communication or (703) 305-9724 for informal or draft communications. Please label "PROPOSED" or "DRAFT" for informal facsimile communications. For after final responses, please label "AFTER FINAL" or "EXPEDITED PROCEDURE" on the document.

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8. Upon the telephonic Election/Requirement, applicant representative's Josephine E. Chang, Reg. No. 46,083, elects Group I without traversed on 03/14/2005 for examination purpose.

Claim Objections

9. Claims 12, 39, 53, 59 and 68 are objected to because of the following informalities: The equation $A=USVt$ is not defined in the recited claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 12-13, 15, 39-40, 42, 53-54 and 56-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blum et al. (US. Patent No. 5,918,223) in view Atkins (US. Patent No. 5,644,727).

Regarding on claim 12, 39 and 53, Blum teaches an audio fingerprinting method comprising:

Receiving an audio signal associated with an audio piece (the analysis method will open the file and read the sound file header) (col. 6, lines 14-16);

Obtaining a plurality of frequency measurements of the audio signal (the sound header usually contains certain information about the digital data, such as its sample

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rate (samples per second), bit length (number of bits per sample), and number of channels (mono, stereo, etc...) (col. 6, lines 15-19);

Building a matrix A based on the frequency measurements (the analysis method will compute new arrays of data values (called projectories), specifying the amplitude (loudness), pitch, bandwidth, bass, brightness, and Mel-frequency cepstral coefficient (MFCCs) over the length of the sound file) (col. 6, lines 24-28) ;

Performing a singular value decomposition on the matrix A, wherein $A = USVt$ (another trajectory of the same length is computed that contains the first deviation of the original trajectory change over times) (col. 6, lines 27-30).

Blum does not explicitly teach retrieving one or more rows of matrix Vt ; and storing the retrieved row of matrix Vt in a data store in association with the audio piece, wherein a request including the retrieved rows of matrix Vt is received by an application program and information stored in a database for the audio piece identified and retrieved based on the rows of matrix Vt in the request. However, Blum teaches "a database is a collection of information stored in a computer. The data arrange as rows in tables, which represent groups of related information. In this invention, a row of data (called a "record") would represent N-vector elements and other data (such as file name, sample rate, bit size, etc.) that are associated with a specific file. (As mentioned earlier, the term "sound file" can also refer to a segment of a file or to a real-time stream video.) The analysis methods described values of the N-vector which are consequently stored in the database record that describes a particular sound file" (col. 5, lines 51-62). This suggests the audio segment is analyzed, computed and stored the value

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corresponding to with the audio pieces. Blum does not disclose this teaching is the audio fingerprinting. On the other hand, Atkins discloses "after the customer denied and warning has issued three times, access will be denied 578. If the thumb print is verified 572, a further form of customer verification and authentication is employed such as a voice print" (col. 59, lines 5-11). This suggests the audio or voice print is the same wherein they still have to be analyze, compare and stored for authentication purpose. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Blum's system to include the voice print concept to verify authenticity of the user to provide the access to the system.

Regarding on claims 13, 40 and 54, Blum teaches the method of claim 12, wherein rows of the matrix A represent time, and columns of the matrix A represent the frequency measurements (col. 6, lines 23-38).

Regarding on claims 15 and 42, Blum teaches the method of claim 12, wherein the information is an audio profile vector storing acoustic analysis data for the audio piece (col. 6, lines 56-64).

Regarding on claims 56 and 65, Blum teaches method of claim 15 further comprising recommending a second audio piece based on the acoustic analysis data (col. 6, lines 56-64).

Regarding on claims 57 and 66, Blum teaches the method of claim 15, wherein the audio profile vector quantifies a degree of similarity of the audio piece to audio pieces classified into a particular audio class (col. 6, lines 7-10).

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Regarding on claims 58 and 67, Blum teaches the method of claim 57 furthering comprising generating an identifier for the particular audio class, the generating including:

Selecting audio pieces associated with the particular audio class (col. 5, lines 50-62);

Computing a second audio fingerprint for each selected audio piece (col. 6, lines 27-30);

Calculating an average of the computed second audio fingerprints (col. 6, lines 27-30);

Associating the calculated average to the particular audio class (col. 5, lines 51-62); and

Storing the calculated average in a data store as the identifier of the particular audio class (col. 5, lines 61-62).

Regarding on claims 59 and 58, Blum teaches the method of claim 58, wherein computing of the second audio fingerprint comprises:

Obtaining from a particular audio signal associated with the selected audio piece a plurality of frequency measurements (col. 16, lines 15-19);

Building a matrix A based on the frequency measurements (col. 6, lines 24-28);

Performing a singular value decomposition on the matrix A, wherein $A = USV^t$ (col. 6, lines 27-30);

Retrieving one or more rows of matrix V^t (col. 5, lines 51-62); and

Associating the retrieved rows of matrix V_t with the selected audio piece (col. 5, lines 51-62).

Regarding on claims 60 and 69, Blum teaches the method of claim 12, wherein the row of matrix A represent time, and columns of the matrix A represent the frequency measurements (col. 6, lines 56-64).

Regarding on claims 61 and 70, Blum teaches the method of claim 12, further comprising generating an index of the audio piece, the generating including:

Automatically obtaining from the audio signal associated with the audio piece a list of musical notes included in the audio piece (col. 5, lines 51-62);

Determining from the audio signal a prominence of the musical note in the audio piece (col. 5, lines 51-62); and

Selecting a pre-determined number of most prominent musical notes in the audio piece as the index (col. 5, lines 51-62).

Regarding on claims 62 and 71, Blum teaches the method recited in claim 61, wherein the selected musical notes are translated to musical note numbers, and the index includes the translated musical note numbers (col. 5, lines 51-62).

Regarding on claims 63 and 72, Blum teaches the method of claim 61, wherein data stored in the database is organized into one or more groups, wherein each group is identified by a particular index (col. 5, lines 51-62).

Regarding on claims 64 and 73, Blum teaches the method of claim 63, wherein a search of the database for the information for the audio piece limited to a group identified by the generated index (col. 5, lines 51-62).

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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is at 571-272-4041 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached at 571-272-4107.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

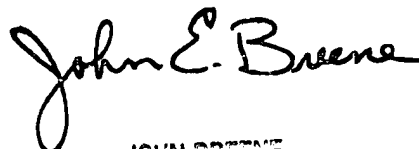
Commissioner of Patents and Trademarks
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(703) 872-9306 [Official Communication]

Baoquoc N. To

March 17, 2005


JOHN BREENE
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231